

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

**U.S. Well Services, Inc., and
U.S. Well Services, LLC,
Plaintiffs,**

v.

**Halliburton Company, and
Cimarex Energy Co.,
Defendants.**

Case No. 6:21-cv-367-ADA

Jury Trial Demanded

DEFENDANTS' OPENING CLAIM CONSTRUCTION BRIEF

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1	U.S. Patent No. 9,410,410 (Asserted by USWS)
2	U.S. Patent No. 8,789,601 (Asserted by USWS)
3	U.S. Patent No. 10,337,308 (Asserted by USWS)
4	U.S. Patent No. 9,970,278 (Asserted by USWS)
5	U.S. Patent No. 9,611,728 (Asserted by USWS)
6	U.S. Patent No. 9,745,840 (Asserted by USWS)
7	U.S. Patent No. 10,408,030 (Asserted by USWS)
8	Declaration of Dr. L. Brun Hilbert, Jr. P.E.
9	Excerpts of <i>U.S. Well Servs., LLC v. Tops Well Servs., LLC</i> , No. 3:19-cv-00237, <i>Markman</i> Hr'g Tr., Dkt. No. 116 (S.D. Tex. June 11, 2020) (highlighting added)
10	U.S. Patent No. 9,650,871 (highlighting added)
11	U.S. Patent No. 10,526,882 (highlighting added)
12	Excerpts of IPR2021-01032, Patent Owner Preliminary Response (highlighting added)
13	Excerpts of U.S. Patent App. No. 13/679,689, Response to Final Office Action dated Mar. 16, 2015 (highlighting added)
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15	Excerpts of U.S. Patent App. No. 13/679,689, Response to Non-Final Office Action dated Aug. 3, 2015 (highlighting added)
16	U.S. Patent App. No. 14/190,982, Response to Non-Final Office Action dated May 20, 2014
17	U.S. Patent App. No. 14/190,982, Notice of Allowance dated June 12, 2014
18	Excerpts of U.S. Patent App. No. 14/884,363, Non-Final Office Action dated Sept. 5, 2017 (highlighting added)
19	Excerpts of U.S. Patent App. No. 15/653,028, Initial Application submitted July 18, 2017
20	Excerpts of U.S. Patent App. No. 15/291,842, Initial Application submitted Oct. 12, 2016
21	Michael J. Economides & Kenneth G. Nolte, <i>Reservoir Stimulation</i> , Chapter 11 (3rd ed. 2000) (referenced in the declaration of Dr. Hilbert)
22	Michael J. Economides & Kenneth G. Nolte, <i>Reservoir Stimulation</i> , Chapter 5 (3rd ed. 2000) (referenced in the declaration of Dr. Hilbert)
23	Hengxing Lan et al., <i>Universal Confined Tensile Strength of Intact Rock</i> , 9 Sci. Rep. 6170 (2019) (referenced in the declaration of Dr. Hilbert)
24	John L. Gidley et al., <i>Recent Advances in Hydraulic Fracturing</i> , Chapter 3 (1989) (referenced in the declaration of Dr. Hilbert)

I. INTRODUCTION

The patents asserted by USWS in this case arose from applications that sought to preclude the public from using very basic technology known well before USWS was even formed—the use of pumps powered by electric motors, equipped with variable frequency drives (“VFDs”) to control the speed of the motors. This technology had been well known in the industry for many years. USWS obtained the issued patents only by inserting into the claims certain language limiting the alleged inventions to hydraulic-fracturing operations. But none of the amendments meaningfully differentiated the claims from prior hydraulic-fracturing systems. Moreover, the terms included by USWS to obtain allowance of the patents are so ambiguous that one of skill in the art would not be able to ascertain the scope of the claims. That is the epitome of indefiniteness and the reason why certain claims should be declared indefinite as a matter of law.

II. OVERVIEW OF ASSERTED PATENTS

Plaintiff U.S. Well Services, LLC (“Plaintiff” or “USWS”) has alleged that Defendant Halliburton Energy Services, Inc. (“Halliburton”) infringes the following patents: U.S. Patent No. 9,410,410 (the “’410 Patent,” Ex. 1), U.S. Patent No. 8,789,601 (the “’601 Patent,” Ex. 2), U.S. Patent No. 10,337,308 (the “’308 Patent,” Ex. 3), U.S. Patent No. 9,970,278 (the “’278 Patent,” Ex. 4), U.S. Patent No. 9,611,728 (the “’728 Patent,” Ex. 5), U.S. Patent No. 9,745,840 (the “’840 Patent,” Ex. 6), and U.S. Patent No. 10,408,030 (the “’030 Patent,” Ex. 7) (collectively the “Asserted USWS Patents”). In addition, USWS alleges that Cimarex Energy Co. (“Cimarex”) infringes the ’308 Patent, the ’840 Patent, and the ’030 Patent. Specifically, USWS alleges infringement of Claims 1-9 of the ’410 Patent, Claims 1-7 of the ’601 Patent, Claims 1-11 of the ’308 Patent, Claims 1-6, 9-16, 19, 22, 23 of the ’278 Patent, Claims 1, 2, 6-8, 10 of the ’728 Patent, Claims 1-16, 18, 19 of the ’840 Patent, and Claims 1-14 of the ’030 Patent (“Asserted USWS Claims”). Halliburton has asserted counterclaims for patent infringement of seven patents, which

will be addressed in Halliburton's responsive claim construction brief.

The Asserted USWS Patents relate generally to hydraulic fracturing operations to produce oil and gas from a well. Each of the Asserted USWS Patents is directed to electric pumps used to pressurize fluid and ultimately fracture underground formations. *See e.g.*, Ex. 1 ('410 Patent), cl. 1; Ex. 2 ('601 Patent), cl. 1; Ex. 3 ('308 Patent), cl. 1; Ex. 4 ('278 Patent), cl. 1; Ex. 5 ('728 Patent), cl. 1; Ex. 6 ('840 Patent), cl. 1; Ex. 7 ('030 Patent), cl. 1. For five of the Asserted USWS Patents (the '410, '601, '278, '728, and '308 Patents), the pumps are configured to pump fluid into the wellbore at "high pressure" so that the fluid passes from the wellbore into the formation, and fractures the formation. *See, e.g.*, Ex. 1 ('410 Patent), cl. 1. These patents further provide additional implementational details, such as: a variable frequency drive that controls the speed of the electric motor ('410, '601, '278, '728, and '308 Patents); a control unit for monitoring the pressure and temperature of the electrically powered pumps and generators ('278 Patent); and a working fluid system and heater for fracturing equipment ('728 Patent). The '840 and '030 Patents are directed to an electrically powered pump for other aspects of a fracturing operation, namely pump-down operations in which fluid is used to push a tool down a wellbore, for example, on a wireline.

III. LEVEL OF ORDINARY SKILL IN THE ART

At the time of the claimed invention for the respective Asserted USWS Patents, a person of skill in the art ("POSITA") would have either (1) a Bachelor of Science in Mechanical Engineering, Electrical Engineering, Petroleum Engineering or an equivalent field and at least two years of academic or industry experience in the oil and gas industry, including well drilling, completion, or production; or (2) at least four years of industry experience in the oil and gas industry, including well drilling, completion, or production.

IV. AGREED CONSTRUCTIONS

The Parties agree on the construction of the following term in the Asserted USWS Patents:

Term	Patents and Claims	Agreed Construction
“can be ported from one well to another”	’410 Patent, Claims 3, 7 ’601 Patent, Claims 5, 6 ’308 Patent, Claims 4, 10	“transported / moved between wells”

The Parties respectfully request that the Court enter this construction in its *Markman* order.

V. TERMS FOR CONSTRUCTION

- A. “high pressure” (’410 Patent, Claim 1; ’601 Patent, Claim 1; ’308 Patent, Claim 1; ’278 Patent, Claims 1, 9; ’728 Patent, Claim 1)

Defendants’ Proposed Construction	USWS’s Proposed Construction
Indefinite	<p>No construction needed. To the extent the term is construed, it should have its plain and ordinary meaning.</p> <p>In the alternative, the term may be construed as “a high pressure so that the fluid enters the formation and fractures the formation”</p> <p>To the extent Defendants argue that the term is indefinite under 35 U.S.C. § 112, USWS contends that the term is not indefinite.</p>

Across five of the Asserted USWS Patents, all independent claims require pumps configured to pump fluid at “high pressure.” The claims, specification, and prosecution history of the Asserted USWS Patents provide no objective standard for ascertaining the scope of this term of degree. *See Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1351 (Fed. Cir. 2005) (“When a word of degree is used the district court must determine whether the patent’s specification provides some standard for measuring that degree.”) (quoting *Seattle Box Co. v. Indus. Crating & Packing, Inc.*, 731 F.2d 818, 826 (Fed. Cir. 1984)).

Representative claim 1 of the ’410 Patent is copied below, with emphasis added:

1. A system for hydraulically fracturing an underground formation in an oil or gas well to extract oil or gas from the formation, the oil or gas well having a wellbore that permits passage of fluid from the wellbore into the formation, the system comprising:

a plurality of electric pumps fluidly connected to the well and powered by at least one electric motor, and configured to pump fluid into the wellbore at **high pressure** so that the fluid passes from the wellbore into the formation, and fractures the formation;

and a variable frequency drive connected to the electric motor to control the speed of the motor, wherein the variable frequency drive frequently performs electric motor diagnostics to prevent damage to the at least one electric motor.

Claim 1 from each of the '601 Patent, '308 Patent, '278 Patent, and '728 Patent are all system claims and use language identical to the underlined language from Claim 1 of the '410 Patent. Claim 9 of the '278 Patent, which is a method claim, recites “pumping fracturing fluid into a well in a formation with an electrically powered pump at a high pressure so that the fracturing fluid enters and cracks the formation.” *See* Ex. 4 ('278 Patent) at 22:18-30. These claims are indefinite for the same reason—the scope of the term changes based on several other parameters, and the intrinsic record does not “provide objective boundaries for those of skill in the art.” *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2018) (finding claim with term of degree to be indefinite in view of *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898 (2014), because “a term of degree fails to provide sufficient notice of its scope if it depends on the unpredictable vagaries of any one person’s opinion”) (internal quotation omitted).

i. “High pressure” is a subjective term of degree

The term “high pressure” is indefinite because what might be sufficiently “high” pressure for one fracturing application and according to one POSITA may be *not* “high” enough in another fracturing application and to another POSITA. The term is “purely subjective” and depends “on the unpredictable vagaries of any one person’s opinion,” and is thus indefinite. *Intellectual Ventures I LLC v. T-Mobile USA, Inc.*, 902 F.3d 1372, 1381 (Fed. Cir. 2018) (quoting *Datamize,*

417 F.3d at 1350-51). USWS’s proposed construction is incorrect because it ties the “pressure” to a degree where “fluid enters the formation and fractures the formation,” thus introducing functional language that is already recited in the claim. Even USWS’s proposed construction does not cure indefiniteness, because whether a fluid enters and fractures a formation depends on the fluid, the formation, and a large set of other operational parameters beyond just the “pressure.” USWS’s “proposed construction requires that an artisan make a separate infringement determination for every set of circumstances in which the [system] may be used, and when such determinations are likely to result in differing outcomes (sometimes infringing and sometimes not), that construction is likely to be indefinite.” See *Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1255 (Fed. Cir. 2008).

The *Halliburton* case is pertinent and factually analogous to the Asserted USWS Patents. In finding the claims from one of the asserted patents indefinite for being “insolubly ambiguous,”¹ the court summarized the separate infringement determinations resulting from the changing circumstances:

Under [plaintiff’s] proposed construction in this case, an artisan would not know from one well to the next whether a certain drilling fluid was within the scope of the claims because a wide variety of factors could affect adequacy (formation geology, wellbore size, depth, angle, etc.). In other words, a given fluid might be adequate to suspend drill cuttings in some formations and/or well configurations, whereas in others it would not be. When a proposed construction requires that an artisan make a separate infringement determination for every set of circumstances in which the [component] may be used, and when such determinations are likely to

¹ The Federal Circuit in *Halliburton* found the claim indefinite, even under the more stringent “insolubly ambiguous” standard. Since then, the Supreme Court lowered the standard for indefiniteness, demanding even *more* clarity in claim drafting. “To tolerate imprecision just short of that rendering a claim ‘insolubly ambiguous’ would diminish the definiteness requirement’s public-notice function and foster the innovation-discouraging ‘zone of uncertainty.’” *Nautilus*, 572 U.S. at 911.

result in differing outcomes (sometimes infringing and sometimes not), that construction is likely to be indefinite.

Halliburton, 514 F.3d at 1254–55. Replace the term “drilling fluid” in the *Halliburton* case with “pump,” and replace “adequacy” with “whether the fluid enters the formation and fractures the formation,” and the ambiguity that rendered “fragile gel” indefinite in the *Halliburton* case is present here in the “high pressure” term.

Defendants’ position for this term is supported by the declaration of Dr. Brun Hilbert, a licensed engineer with decades of experience in hydraulic fracturing. Ex. 8 (Hilbert Decl.) (further supporting his opinions by citing Ex. 21-24). As Dr. Hilbert described, there is no universally accepted definition of the term “high pressure” with regard to pumps for hydraulic-fracturing operations. Ex. 8 ¶28. Even in the context of sufficiency to provide hydraulic fracturing, what might be considered “high pressure” varies across changing circumstances—including different formations, and even within the same formation. *Id.* Merely stating that a pump provides pressure sufficient to fracture a formation or drive fluid into a wellbore says little to nothing about whether that pump should be deemed “high pressure,” or conversely, “not high pressure.” Ex. 8 ¶34.

Analyzing what pressure would allow fluid to pass into a formation and fracture the formation would require a POSITA to make a “separate infringement determination for every set of circumstances in which the [system] may be used, and [] such determinations are likely to result in differing outcomes.” *Halliburton*, 514 F.3d at 1255. For example, certain geologic formations require less pressure to fracture than other geologic formations. Ex. 8 ¶36, ¶38. The pressure necessary to fracture a formation depends on numerous complex factors, including: (i) the strength and elastic properties of the formation rock to be fractured (*e.g.*, whether dealing with sandstone or marble); (ii) the reservoir pressure and stress due to the weight of the earth above the target formation rock; (iii) the desired dimensions of the hydraulic fractures; (iv) the properties of the

fracturing fluid; (v) the properties of the proppant used to keep open the fractures; (vi) the depth and length of the well; (vii) the size (diameter) of the wellbore and casing; (viii) piping sizes and connections from the pumps to the manifold and to the wellhead. Ex. 8 ¶37. And even within the *same* formation and *same* depth, the pressure varies between that necessary to generate a fracture (*i.e.*, first start a crack), the pressure necessary to continue a fracture (*i.e.*, propagate the crack), and the pressure to fracture different stages of the formation. Ex. 8 ¶39-¶41.

Even ascertaining the pressure at points between the fracturing pumps and the fracturing face (the point within the formation to be fractured) wellbore will change depending on the intervening hardware and other circumstances. Ex. 8 ¶31, ¶42-¶45. This includes pressure drops due to fluid flowing through flexible hoses or iron pipes, a manifold, shutoff valves, and other hardware. The pressure also drops as the fluid flows down the well, the depth of which varies depending on the formation being fractured and type of fracturing (*e.g.*, horizontal v. vertical) being employed. Ex. 8 ¶31, ¶39- ¶45.

Thus, the term “high pressure” would require a POSITA to make a separate determination for every set of circumstances in which a pump may be used, with reasonable minds having different views as to what is considered “high pressure.”

ii. The specification and prosecution history do not provide any reasonable certainty as to claim scope

The specifications of the Asserted USWS Patents do not provide any “objective baseline” to enable a POSITA to differentiate “high pressure” from non-high pressure. “Terms of degree are problematic if their baseline is unclear to those of ordinary skill in the art.” *See Liberty Ammunition, Inc. v. United States*, 835 F.3d 1388, 1395 (Fed. Cir. 2016) (explaining that a term of degree “necessarily calls for a comparison against some baseline,” but finding the claim term “reduced area of contact” not indefinite because the specification identified two examples to

compare with one another).

The specifications of the Asserted USWS Patents do not provide guidance that would clarify the meaning of the term “high pressure,” or provide a baseline of comparison to allow skilled artisans to differentiate a pump that is “high pressure” from a pump that is “not high pressure.”² Ex. 8 (Hilbert Decl.) ¶¶46-¶52. For example, the Asserted USWS Patents simply repeat the language of the claims, but provide no guidance to distinguish between “high pressure” pumps and other kinds of pumps. *See, e.g.*, Ex. 1 (’410 Patent) at Abstract, 1:14-15, 1:45-48, 1:64-67, 2:33-35, 2:48-50. Further compounding the ambiguity, the patents state, “Fracturing rock in a formation requires that the fracture fluid be pumped into the wellbore at *very high pressure*.” Ex. 1 (’410 Patent) at 1:21-22; Ex. 3 (’308 Patent) at 1:30-31 (same); Ex. 2 (’601 Patent) at 1:31-32 (same). This begs the question of the difference between “high pressure” (as stated in the claims) and “very high pressure” (in the specification), let alone how this impacts the selection of a hydraulic fracturing pump or ascertaining which kind of pump is within the claims and which is not.

Also compounding the ambiguity is how the ’278 Patent uses the “high pressure” term differently from the other Asserted USWS Patents. As with the ’410, ’601, and ’308 Patents, the ’278 Patent does not mention the magnitude of the pressure (*e.g.*, in pounds per square inch), and the term “psi” is never used in the patent. And similar to the ’410, ’601, and ’308 Patents, the ’278 Patent states that fluid is pumped “into the wellbore at *very high pressure*.” Ex. 4 (’278 Patent) at 1:32-33. While the ’278 Patent states that pressure is one of many parameters that are monitored, the ’278 Patent does not specify where or how the pressure is measured, what range is expected to

² The prosecution histories of the Asserted USWS Patents also do not address the “high pressure” term in any meaningful way that would give clarity to its scope.

fracture a formation, and what range would be considered “high pressure.” *See, e.g., id.* at 2:20-24 (“The process can further include monitoring at a centralized control unit at least one of the pressure, temperature, fluid rate, fluid density, concentration, ...”). The patent further states: “The signals for such controls can include, for example, on/of, speed control, and an automatic *over-pressure* trip.” *Id.* at 5:57-59 (emphasis added). But there is no description as to where this “over-pressure” is measured, on which piece of equipment it is measured, or how (or if) “over-pressure” relates to “high pressure.” Elsewhere, the patent refers to preventing an “over – pressure event” regarding “the iron.” *Id.* at 5:59-62. The patent does not discuss where the pressure measurement is taken or where the “iron” is, as there are numerous segments of “iron” upstream and downstream of the hydraulic fracturing pumps. Ex. 8 ¶¶48-¶49.

The '278 Patent further states that pressure can be measured at numerous other places, including pressures of fluids “entering and exiting the well,” Ex. 4 at 7:56-57, blender suction and discharge pressures, *id.* at 8:53-55, hydration unit suction and discharge pressures, *id.* at 10:11-13, “pump discharge pressure, wellhead iron pressure,” *id.* at 10:64-65, fracturing pump discharge pressure and suction pressure, *id.* at 11:58-61, and “pressure between the wellhead and check valve, pressure between the check valve and manifold trailer,” *id.* at 13:7-9. Yet again, the '278 Patent does not describe the expected pressure ranges, which of these points should be measured for purposes of the claims, and what would be considered “high pressure.” Ex. 8 ¶49.

Courts routinely find terms of degree, particularly those containing “high,” to be indefinite when the specification does not provide any objective standards to differentiate what would be deemed “high” and within the scope of the claims, and “not high” and not within the scope. *See Graphics Props. Holdings, Inc. v. Asus Computer Int’l, Inc.*, No. 12-cv-210-LPS, 2014 WL 4929340, at *19 (D. Del. Sept. 29, 2014) (finding “**high** information content” indefinite because

“there is no standard in the specification for measuring what differentiates ‘high information content’ from ‘information content’ generally”); *Advanced Display Techs. of Texas, LLC v. AU Optronics Corp.*, No. 6:11-cv-00011-LED, 2012 WL 2872121, at *12 (E.D. Tex. July 12, 2012) (finding claim with the term “**highly** modulated surface” to be indefinite, because the patent “fails to provide a standard for measuring the difference between a mere modulated surface and a *highly* modulated surface”); *Panavision Imaging, LLC v. Omnivision Techs., Inc.*, No. 2:09-cv-01577-MRP (CTx), Dkt. No. 234 at 15, 2011 WL 1337918 (C.D. Cal. Feb. 7, 2011) (finding claim indefinite because “there must be some standard or context to give meaning to a term like ‘**high-impedance**’” and no such “standard or context” existed), *overruled by* Dkt. No. 277 (July 8, 2011) (rescinding portion of order dealing with indefiniteness of term “high-impedance”), *overruled by* Dkt. No. 397 at 6–9, 2012 WL 12952006, at *3–4 (May 25, 2012) (finding that “it is clear that the original indefiniteness finding was correct” and holding that the term “high-impedance” is indefinite); *Selex Commnc’s, Inc. v. Google Inc.*, No. 1:09-cv-02927-TWT, 2013 WL 1412334, at *14 (N.D. Ga. Apr. 8, 2013) (finding claim indefinite because “with respect to ‘**high** cost number,’ there is no standard by which a person having ordinary skill in the art could determine with a degree of certainty that a dialed number is a ‘high cost number’”) (all emphases added). The specifications do not provide any metric, and instead just repeat the claim language. Ex. 8 ¶46.

iii. The Southern District of Texas Addressed the Term In A Prior Related Case

This case is not the first time USWS has asserted claims with “high pressure” in them. In the *Tops* litigation, USWS had previously asserted the ’410, ’601, ’308, ’278, and ’728 Patents. At the *Markman* hearing, USWS admitted that the “high pressure” claims would require a separate determination for every set of circumstances in which the pump may be used:

THE COURT: Well, and that's because clearly if you are fracking you are going to -- the pressure will vary depending upon the rock formation or the various circumstances that are out there.

[COUNSEL FOR USWS]: Right. And you don't show up with a pump that only has a range of 5,000 to 6,000. You show up -- one, you know what the formation is going to be before you show up. And these pumps have wide ranges of capabilities, and you use a pump that's adequate for the formation that you are fracking.

Ex. 9, *U.S. Well Servs., LLC v. Tops Well Servs., LLC*, No. 3:19-cv-00237, *Markman* Hr'g Tr., Dkt. No. 116 at 217:13-22 (S.D. Tex. June 11, 2020). The court then looked at one patent out of the set (the '728 Patent), which has a different specification, to pick a number for "high pressure."

The '728 Patent—which has a different specification and different inventors than the other patents³—distinguishes pressures in the prior art within the "Background" section, stating: "These parts allow the hydraulic fracturing pump to draw in low pressure fluid slurry (approximately 100 psi) and discharge the same fluid slurry at high pressures (over 10,000 psi)." Ex. 5 ('728 Patent) at 1:52-55. In contrast to the prior art at 10,000 psi of the prior art, the "Detailed Description of the Invention" of the '728 Patent states that the "pressure of the slurry can be increased up to around 15,000 psi." *Id.* at 4:43-45. Consequently, the Southern District of Texas found "high pressure" to mean 15,000 psi (pounds per square inch). *U.S. Well Servs., LLC v. Tops Well Servs., LLC*, No. 3:19-cv-00237, 2020 WL 9439469, at *26 (S.D. Tex. Sept. 18, 2020) (citing to Dkt. 72-4, which was the '728 Patent).⁴ The specification of the '728 Patent is unique in that none of the other patents provide a magnitude of the pressure. Ex. 8 ¶50. In any event, the '728 Patent and the other Asserted USWS Patents do not address the numerous other ambiguities in the term "high

³ The '728 Patent claims priority, as a continuation-in-part (CIP), to the '410 Patent (App. No. 13/679,689). However, the '728 Patent is not a proper CIP, as it does not share *any* common inventors with the '410 Patent and has a rewritten specification. *See* 35 U.S.C. § 120; 37 C.F.R. § 1.78.

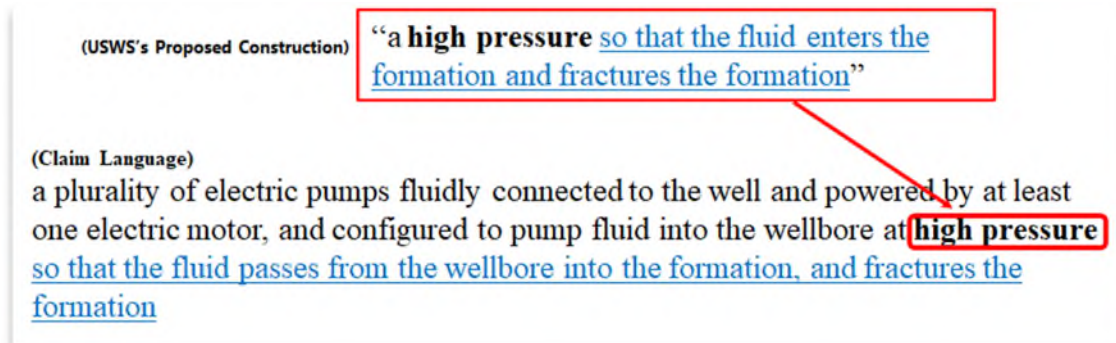
⁴ After reaching settlement, USWS and the accused infringer in the Southern District of Texas requested that the court vacate the Report and Recommendation. The Southern District court granted the parties' request. *U.S. Well Servs., LLC v. Tops Well Servs., LLC*, No. 3:19-cv-00237, Dkt. No. 135 at 57 (S.D. Tex. Sept. 22, 2021).

pressure” discussed above.

iv. USWS’s alternative construction is incorrect and does not resolve the issue

USWS’s proposed construction of “high pressure” does not make this indefinite term any more definite, and instead highlights its inability to explain what “high pressure” actually means. In a recursive manner, USWS merely re-injects the existing language back into the claim, incorporating several already existing elements into its purported definition of “high pressure.” In doing so, USWS’s construction renders those separate elements in the existing claim language entirely superfluous. *Akzo Nobel Coatings, Inc. v. Dow Chem. Co.*, 811 F.3d 1334, 1340 (Fed. Cir. 2016) (finding that claim constructions rendering terms “entirely superfluous” are “disfavored”).

In particular, USWS attempts to define “high pressure” by including in its construction other language that already exists in the claim, as shown below:



Another court in this District rejected a similar attempt, in which the plaintiff argued that the term “space-constrained display” in the phrase “space-constrained display of a portable device” was definite because other language in the claim (*i.e.*, “portable device”) was well defined. *Versata Software, Inc. v. Zoho Corp.*, 213 F. Supp. 3d 829, 837 (W.D. Tex. 2016). The Court rejected the plaintiff’s argument and found that a separate term in the claim could “not supply meaning to the [disputed term],” and that “meaning must be separately given to [the disputed term].” *Id.* As in

Versata, USWS attempts to make “high pressure” definite by incorporating other existing claim language into its construction. This attempt fails to provide the necessary separate meaning to the disputed term. USWS’s proposed construction is “clearly contemplated by the surrounding claim language,” by suggesting that any pump that provides fluid into a formation and fractures the formation is at “high pressure.” *See Akzo Nobel*, 811 F.3d at 1340. But if that were true, there would be no need for the claim to specify that the pump be configured to pump fluid at “high pressure” (instead of any other level of pressure), because the remaining language in the claim already provides this requirement.

Similarly, in *Truinject Corp. v. Galderma, S.A.*, the District of Delaware rejected a plaintiff’s attempt to provide meaning to an indefinite term by inserting existing claim language into its construction. In *Truinject*, the plaintiff proposed a construction of the disputed term that would “encompass [existing claim language], which would render those requirements superfluous.” *Truinject Corp. v. Galderma, S.A.*, No. CV 19-592-LPS-JLH, 2020 WL 3287047, at *8 (D. Del. June 18, 2020) (rejecting plaintiff’s proposed construction and finding the disputed term indefinite). As in *Truinject*, USWS’s construction of “high pressure” renders claim language superfluous such that effect cannot be given to all the terms. When attempt is made to give effect to all terms, “high pressure” provides no reasonable certainty as to claim scope. Thus, the Court should reject Plaintiff’s proposed construction and find the term “high pressure” is indefinite.

B. “the vehicles” (’410 Patent, Claim 8)

Defendants’ Proposed Construction	USWS’s Proposed Construction
Indefinite.	<p>No construction needed. To the extent the term is construed, it should have its plain and ordinary meaning.</p> <p>To the extent Defendants argue that the term is indefinite under 35 U.S.C. § 112, USWS contends that the term is not indefinite.</p>

The term “the vehicles” in claim 8 of ’410 Patent is indefinite for failing to provide reasonable certainty as to claim scope. Claim 8 recites, “The system of claim 4, wherein the vehicles are trucks having at least five axles.” Ex. 1 (’410 Patent), cl. 8. Claim 4 depends from claim 1, but neither claim 4 nor claim 1 recite the term “vehicles” anywhere in the claim language. These claims are copied below:

Independent Claim	Dependent Claims
<p>1. A system for hydraulically fracturing an underground formation in an oil or gas well to extract oil or gas from the formation, the oil or gas well having a wellbore that permits passage of fluid from the wellbore into the formation, the system comprising:</p> <p>a plurality of electric pumps fluidly connected to the well and powered by at least one electric motor, and configured to pump fluid into the wellbore at high pressure so that the fluid passes from the wellbore into the formation, and fractures the formation; and</p> <p>a variable frequency drive connected to the electric motor to control the speed of the motor, wherein the variable frequency drive frequently performs electric motor diagnostics to prevent damage to the at least one electric motor.</p>	<p>4. The system of claim 1, further comprising: a plurality of generators electrically connected to the plurality of electric pumps to provide electrical power to the pumps.</p> <p>8. The system of claim 4, wherein <u>the vehicles</u> are trucks having at least five axles.</p>

The lack of antecedent basis for “the vehicles” “signals a potential indefiniteness problem.” *See Bushnell Hawthorne, LLC v. Cisco Sys., Inc.*, 813 Fed. Appx. 522, 526 (Fed. Cir. 2020) (finding a claim term lacking antecedent basis indefinite because the broader context of the claim and specification could not resolve the ambiguity). Here too, the broader context and specification do not resolve the ambiguity surrounding “the vehicles.” The claim thus fails to “inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus*, 572 U.S. at 910; *see also Dig. Retail Apps, Inc. v. H-E-B, LP*, No. 6:19-CV-00167-ADA, 2020 WL 376664, at *10 n.7 (W.D. Tex. Jan. 23, 2020) (finding dependent claims including the term “the purchase information” indefinite for lacking antecedent basis because claim 1 did not disclose “purchase information”). The same is true of “the vehicles” in dependent claim 8 here, which depends from

claims 1 and 4, and neither of which disclose the term “vehicles.” Claim 8 is invalid as indefinite because it is not “precise enough to afford clear notice of what is claimed.” *See Nautilus*, 572 U.S. at 909.

C. “performing / performs electric motor diagnostics to prevent damage” / “performs electric motor diagnostics” (’410 Patent, Claim 1; ’601 Patent, Claim 1; ’728 Patent, Claims 1, 7)

Defendants’ Proposed Construction	USWS’s Proposed Construction
Indefinite. This is a mixed method-and-apparatus claim and is indefinite under <i>IPXL Holdings, L.L.C. v. Amazon.com, Inc.</i> , 430 F.3d 1377 (Fed. Cir. 2005).	No construction needed. To the extent the term is construed, it should have its plain and ordinary meaning. In the alternative, the term should mean “tests performed on an electric motor to detect problems.”

The parties dispute whether this term is indefinite for reciting a method step in a system claim. Claim 1 of the ’410 Patent, claim 1 of the ’601 Patent, and claims 1 and 7 of the ’728 Patent are all system claims, but all recite a system and a method for using the system. Claim 1 of the ’601 Patent is representative:

1. A **system** for hydraulically fracturing an underground formation in an oil or gas well to extract oil or gas from the formation, the oil or gas well having a wellbore that permits passage of fluid from the wellbore into the formation, the system comprising;

a plurality of pumps mounted on a trailer or truck and powered by electric motors and fluidly connected to the well, the pumps configured to pump fluid into the wellbore at high pressure so that the fluid passes from the wellbore into the formation, and fractures the formation;
at least one variable frequency drive connected to the electric motors to control the speed of the motors, the at least one variable frequency drive frequently **performing** electric motor diagnostics to prevent damage to the electric motors if they become grounded or shorted; and a plurality of generators electrically connected to the plurality of pumps to provide electrical power to the pumps.

Ex. 2 (’601 Patent), cl. 1 (emphases added). The step of “performing electric motor diagnostics to prevent damage” is a method step within a system claim that otherwise provides system

components (*e.g.*, “a plurality of pumps mounted on a trailer or truck,” “electric motors,” and “at least one variable frequency drive”). Under the Federal Circuit’s ruling in *IPXL Holdings*, these claims in the Asserted USWS Patents are indefinite. *See IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377 (Fed. Cir. 2005). Defendants recognize that the rule in *IPXL* is narrow and does not apply to claims that merely recite a structure and its capability. *See Microprocessor Enhancement Corp. v. Texas Ins. Inc.*, 520 F.3d 1367, 1374–75 (Fed. Cir. 2008) (finding a method claim that recites requisite structure not indefinite). The claims of the Asserted USWS Patents, however, are not directed to the functionality of the variable frequency drive (“VFD”); they instead recite active method steps, requiring the VFD to take certain actions at certain intervals (*e.g.*, “frequently”).

i. The Context of the Claims Confirms that “Performing” and “Performs” Is a Method Step

The surrounding claim language confirms that the inventors knew how to claim functionality, but instead chose to recite the VFD in a method step. For example, *other* limitations directly recite functionality, such as “pumps configured to pump fluid into the wellbore” or a VFD “to control.” Similarly, the inventors *could* have chosen to claim a VFD “configured to perform,” “capable of performing,” or “to perform.” *See MasterMine Software Inc. v. Microsoft Corp.*, 874 F.3d 1307, 1315–16 (Fed. Cir. 2017) (finding claims *not* indefinite under *IPXL* line of cases when they recite “permissible functional language used to describe capabilities”). But the USWS inventors did not do so.

This claim term rises above the level of “permissible functional language used to describe capabilities” of *MasterMine* and other patent claims where the Federal Circuit has declined to apply *IPXL*. In contrast to reciting permissible functionality of the VFD, the inventors recited a VFD that carries out a method step at certain intervals—“frequently performing electric motor

diagnostics” (claim 1 of ’601 Patent) or “frequently performs electric motor diagnostics” (*e.g.*, claim 1 of ’410 Patent). The VFD must actually carry out the method step of “performing” electric motor diagnostics frequently, rather than merely being “capable of” or “configured to” perform diagnostics.

Because of the inclusion of an improper method step in a system claim, a POSITA would be unable to reasonably ascertain when infringement has occurred. For example, would infringement have occurred when all physical components, including a VFD, are made or sold? Or would have infringement have occurred when the VFD is actually used to carry out the required step of “frequently performing electric motor diagnostics”? This ambiguity was the chief concern raised by the Federal Circuit. *IPXL*, 430 F.3d at 1384 (noting that “a manufacturer or seller of the claimed apparatus would not know from the claim whether it might also be liable for contributory infringement because a buyer or user of the apparatus later performs the claimed method of using the apparatus”).

Compounding this ambiguity, the claim specifies that the VFD must actually perform this specific functionality “frequently.” This language requires that the VFD not only perform electronic motor diagnostics once, but that it do so often enough to be considered “frequent.”

ii. The Specification Confirms that “Performing Electric Motor Diagnostics” Is a Method Step, and Not Mere Functionality

The specifications of the Asserted USWS Patents explain that “performing electric motor diagnostics” is a method step that is performed by a user. The ’601 and ’410 Patents provide that “[t]he electric motor diagnostics *can be disabled, if desired, when using*, for example, a low impedance or high-speed electric motor.” *See* Ex. 2 (’601 Patent) at 4:46; Ex. 1 (’410 Patent) at 4:2 (emphasis added). Because the patents specify that an operator can disable performance of electric motor diagnostics, it follows that an operator can also enable performance of electric motor

diagnostics. Whether or not the VFD is actually “performing electric motor diagnostics” is therefore a matter of user input, rendering it entirely unclear when infringement has occurred. *See Visible Connections, LLC v. Zoho Corp.*, 418 F. Supp. 3d 155, 166 (W.D. Tex. 2019) (finding claim invalid “[b]ecause the presence of user steps makes it unclear” when infringement has occurred); *In re Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303, 1318 (Fed. Cir. 2011) (claims that “create confusion as to when direct infringement occurs because they are directed both to systems and to actions performed by ‘individual callers’ . . . fall squarely within the rationale of *IPXL* and are indefinite”).

Similar to the claims at issue in *Visible Connections*, and unlike the claims in *MasterMine* and *Microprocessor Enhancement*, the claims here recite an apparatus with method steps (rather than the reverse). For example, if a VFD is made and sold for “performing electric motor diagnostics,” but a user has disabled that functionality, has infringement occurred? The Federal Circuit sought to avoid such ambiguity in *IPXL* by holding such mixed apparatus-method claims indefinite. *IPXL*, 430 F.3d at 1384 (“Because claim 25 recites both a system and the method for using that system, it does not apprise a person of ordinary skill in the art of its scope, and it is invalid under section 112, paragraph 2.”). The same result is warranted here.

iii. Other USWS Patents Confirm that “Performing Electric Motor Diagnostics” Is a Method Step

USWS’s consistent use of this claim language in method claims of related patents further confirms that “performing electric motor diagnostics” is a method step. While the claims reciting this term in the Asserted USWS Patents are expressly apparatus claims, USWS used the exact phrase—“performing electric motor diagnostics”—as a method step in method claims in related patents, as shown below.

'601 Patent (Ex. 2)	U.S. Patent No. 9,650,871 (Ex. 10)	U.S. Patent No. 10,526,882 (Ex. 11)
<p>1. A system for hydraulically fracturing an underground formation in an oil or gas well to extract oil or gas from the formation, the oil or gas well having a wellbore that permits passage of fluid from the wellbore into the formation, the system comprising;</p> <p>...</p> <p>at least one variable frequency drive connected to the electric motors to control the speed of the motors, <u>the at least one variable frequency drive frequently performing electric motor diagnostics</u> to prevent damage to the electric motors if they become grounded or shorted; ...</p>	<p>15. A method of fracturing a subterranean formation comprising:</p> <p>...</p> <p>controlling the speed of the motor with a variable frequency drive, <u>the variable frequency drive further performing electric motor diagnostics</u>; ...</p>	<p>8. A method of fracturing a subterranean formation comprising:</p> <p>driving a pump with an electric motor; ...</p> <p>9. The method of claim 8, further comprising controlling a speed of the motor with a variable frequency drive.</p> <p>10. The method of claim 9, further comprising <u>performing diagnostics on the electric motor with the variable frequency drive</u>.</p>

The use of identical or nearly-identical language in method claims in related patents bolsters the conclusion that these claims are improper mixed apparatus-method claims. *Cf. Bayer Pharma AG v. Watson Labs., Inc.*, No. 12-1726-LPS-CJB, 2014 WL 4954617, at *8 (D. Del. Sept. 30, 2014) (finding that the stark difference in phraseology chosen between method and apparatus claims indicates that patentee did not include method steps in the apparatus claims). While in *Bayer* the court found that the claims at issue were not mixed claims based on the patentee using starkly different language in method claims and system claims, here, as shown by the table above, USWS *has* used identical or nearly-identical language in its system claims and method claims. USWS's use of a method step requiring user input in a system claim, as confirmed by its use of the same phraseology in method claims, renders the claim invalid under *IPXL*.

iv. USWS Asks the Court to Rewrite Its Claims

Recognizing the problems with indefiniteness, USWS asks the Court to rewrite the claims: changing “diagnostics” to “tests”; changing “to prevent damage” to the even more ambiguous “to detect problems”; and changing “performing” and “performs” to the participle “performed.” A construction that requires the Court to “rewrite claims to preserve their validity” should be rejected. *See Synchronoss Techs., Inc. v. Dropbox, Inc.*, 987 F.3d 1358, 1367 (Fed. Cir. 2021) (quoting *Allen Eng'g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1349 (Fed. Cir. 2002)).

USWS’s rewritten claim is inconsistent with the claim language and creates additional ambiguity regarding the claim term. First, USWS’s proposed construction is improper because it changes the claim entirely by reading out the limitation “to prevent damage.” *See Callicrate v. Wadsworth Mfg., Inc.*, 427 F.3d 1361, 1369 (Fed. Cir. 2005) (holding that it is improper to read out a limitation clearly required by the claim language). No longer is “prevention” required, but rather, “detection” is enough. In its Patent Owner Preliminary Responses filed recently in co-pending IPRs of the Asserted USWS Patents, USWS repeatedly emphasized the importance of the term “to prevent damage to the motors” as the alleged point of novelty over the prior art:

For instance, Petitioner purports to combine *Coli* and *Horikoshi* to achieve the advantages of “protect[ing] the electric motor from damage.” Petition, 20; Ex. 2005, 21. However, these are the same improvements the ’410 Patent identifies and claims. Ex. 1002, 2:19-21; claims, 1, 10, and 19; Ex. 2005, 21. Specifically,

See e.g., Ex. 12 (IPR2021-01032, Patent Owner Preliminary Response) at 27.

Only after reading the '410 Patent's disclosure and claims does Petitioner's motivation to combine *Coli* and *Horikoshi* become clear. Ex. 2005, 25. Specifically, the VFD as taught in the '410 Patent "can frequently perform electric motor diagnostics to prevent damage to the electric motor if it becomes grounded or shorted." Ex. 1002, 2:19-21, claims 1, 10, 19; Ex. 2005, 23-25. Thus, Petitioner has used improper *ex post* and hindsight bias as a motivation to combine *Coli* and *Horikoshi* to reach the claimed invention. See *KSR*, 550 U.S. at 421 (warning against hindsight reconstruction).

See *e.g.*, *id.* at 29. In contrast to its arguments in IPRs, USWS's arguments in litigation attempt to read out the claim term entirely in favor of reading in a limitation that merely "detects" problems as opposed to "prevent damage."

Furthermore, USWS's alternative construction changes both the noun and the present tense verbs of the claim language ("performing ... diagnostics") to a participle ("tests performed"), creating a grammatical mess and rendering the claim nonsensical. For example, incorporating USWS's construction, claim 1 of the '601 Patent would read "the at least one variable frequency drive frequently tests performed on an electric motor to detect problems." See *Image Processing Techs., LLC v. Samsung Elecs. Co.*, No. 2:16-CV-505, 2017 WL 2672616, at *13 (E.D. Tex. June 21, 2017) (holding a claim indefinite where "there are grammar issues for this disputed phrase and it is unclear what portions of the disputed term are modifying other portions of the phrase").

USWS's alternative construction introduces new ambiguities to the claim term. For example, when does the "detection" occur—before or after problems arose? What are the "problems" the VFD is meant to detect? The specifications of the patents provide no guidance in response to these self-inflicted ambiguities. Because USWS's alternative proposed construction

only further muddies the meaning of the claim term, it should be rejected.

D. “the at least one variable frequency drive frequently performing electric motor diagnostics to prevent damage to the electric motors if they become grounded or shorted” (’601 Patent, Claim 1)

Defendants’ Proposed Construction	USWS’s Proposed Construction
Indefinite.	No construction needed. To the extent the term is construed, it should have its plain and ordinary meaning.

The claim is indefinite because the phrase “if [the electric motors] become grounded or shorted” is subjective and conditional, providing no objective guidance of the manner in which (or when) the electric motor diagnostics *prevent* damage, or if grounding or shorting is a required claim element. Moreover, the Applicants acquiesced to the indefiniteness of this exact phrase during prosecution of the Asserted ’410 Patent, as detailed below. USWS does not resolve the indefiniteness, instead asserting that the term should have its plain meaning, but failing to identify what that plain meaning is.

i. The Inventors Acquiesced That This Term Is Indefinite During Prosecution of a Parent Application

During prosecution of the parent application to the ’601 Patent, the inventors acquiesced to indefiniteness of the term “if they become grounded or shorted” by removing this phrase to obtain allowance. The claim phrase “if they become grounded or shorted” was included in all the independent claims of U.S. Patent Application No. 13/679,689 (’689 Application, which ultimately issued as the Asserted ’410 Patent, and is the parent to the Asserted ’601 Patent). The relevant claims recited “a variable frequency drive connected to the electric motor to control the speed of the motor, wherein the variable frequency drive frequently performs electric motor diagnostics to prevent damage to the electric motor *if it becomes grounded or shorted,*” as shown below:

THAT CLAIMED IS:

1. (Currently Amended) A system for hydraulically fracturing an underground formation in an oil or gas well to extract oil or gas from the formation, the oil or gas well having a wellbore that permits passage of fluid from the wellbore into the formation, the system comprising:

a plurality of electric pumps fluidly connected to the well and powered by at least one electric motor, and configured to pump fluid into the wellbore at high pressure so that the fluid passes from the wellbore into the formation, and fractures the formation; and

a variable frequency drive connected to the electric motor to control the speed of the motor, wherein the variable frequency drive has one or more power semiconductor heat sinks having thermal sensors monitored by a microprocessor to prevent damage caused by excessive heat frequently performs electric motor diagnostics to prevent damage to the at least one electric motor if it becomes grounded or shorted.

See, e.g., Ex. 13 (U.S. Patent App. No. 13/679,689, Resp. to Final Office Action dated March 16, 2015) at 2 (highlighted).

The Examiner objected to the claims, because “the term ‘if’ in the independent claims renders the claim indefinite because it was unclear whether the limitations following the term are part of the claimed invention.”

Claim Objections

Claims 1, 4, 5, 8-14, 18, 20-29 are objected to because of the following:

The term “if” in the independent claims renders the claim indefinite because it is unclear whether the limitations following the term are part of the claimed invention. See MPEP § 2173.05(d).

Ex. 14 (U.S. Patent App. No. 13/679,689, Non-Final Office Action dated August 3, 2015) at 2 (highlighted).

In response to that Office Action during prosecution of the ’410 Patent, and to overcome

the indefiniteness rejection, the inventors acquiesced to the Examiner's rejection and amended the claim to remove the phrase "if they become grounded or shorted."

1. (Currently Amended) A system for hydraulically fracturing an underground formation in an oil or gas well to extract oil or gas from the formation, the oil or gas well having a wellbore that permits passage of fluid from the wellbore into the formation, the system comprising:

a plurality of electric pumps fluidly connected to the well and powered by at least one electric motor, and configured to pump fluid into the wellbore at high pressure so that the fluid passes from the wellbore into the formation, and fractures the formation; and

a variable frequency drive connected to the electric motor to control the speed of the motor, wherein the variable frequency drive frequently performs electric motor diagnostics to prevent damage to the at least one electric motor ~~if it becomes grounded or shorted.~~

In the Office Action, the Examiner objected to claims 1, 4, 5, 18, and 20-29 under 35 U.S.C. 112, second paragraph and MPEP § 2173.05(d), because "the term 'if' in the independent claims renders the claim indefinite because it is unclear whether the limitations following the term are part of the claimed invention." (Non-Final Office Action, page 2). Applicants have amended claims 1, 8, and 18 to not include the "if" limitation. Accordingly, Applicants respectfully submit that the 112 rejections are overcome.

Ex. 15 (Response to Non-Final Office Action dated Aug. 3, 2015) at 2-4, 6 (highlighted).

But the particular indefiniteness issue that USWS cured in the '410 Patent still persists in the '601 Patent. The inventors' acquiescence to the Examiner's rejection under Section 112(2) further underscores that the claim term is indefinite. *See In re Christmann*, 128 F.2d 596, 599 (C.C.P.A. 1942) (finding that applicant's "acquiescence in the rejection and cancellation of the claims" amounted to a "binding admission"); *cf. Glaxo Wellcome, Inc. v. Impax Labs., Inc.*, 356 F.3d 1348, 1357 (Fed. Cir. 2004) ("If the patentee does not rebut an examiner's comment or acquiesces to an examiner's request, the patentee's unambiguous acts or omissions can create

estoppel.”). The acquiescence of the inventors that identical claim language in a parent application was indefinite should result in a finding of indefiniteness for the child ’601 Patent.

ii. The Intrinsic Evidence Does Not Resolve the Ambiguity

The intrinsic evidence does not provide a person or ordinary skill with any clarity on the role of grounding or shorting in claim 1. *See Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898. Nothing in the specification or prosecution history explains how damage could be prevented *if* the electric motors have grounded or shorted. It is unclear when the diagnostics are performed to prevent damage—the claim language “if they become grounded or shorted” contemplates that the electric motors have *already* grounded or shorted. In such an instance, the damage has already occurred and cannot be “prevented.” Thus, the claim language contemplates “prevention” of damage *after* the damage has already occurred, which would be impossible.

The specification fails to resolve any ambiguity. For the most part, the ’410 Patent simply repeats the language of claim 1, without providing any examples involving grounding or shorting. *See* Ex. 1 (’410 Patent) claims 8, 22; 2:33-35.

The VFD can be designed to maximize the flexibility, robustness, serviceability, and reliability required by oilfield applications, such as hydraulic fracturing. For example, as far as hardware is concerned, the VFD can include packaging receiving a high rating by the National Electrical Manufacturers Association (such as nema 1 packaging), and power semiconductor heat sinks having one or more thermal sensors monitored by a microprocessor to prevent semiconductor damage caused by excessive heat. Furthermore, with respect to control capabilities, the VFD can provide complete monitoring and protection of drive internal operations while communicating with an operator via one or more user interfaces. **For example, motor diagnostics can be performed frequently (e.g., on the application of power, or with each start), to prevent damage to a grounded or shorted electric motor 14.** The electric motor diagnostics can be disabled, if desired, when using, for example, a low impedance or high-speed electric motor.

See id. 3:66-4:1. This passage, however, does not resolve the ambiguity as it merely repeats the claim language without identifying how (or whether) damage is prevented.

As with the claims and the specification, the prosecution history of the ’601 Patent is also

unclear on the role of grounding and shorting in the claims, because neither the Examiner nor the Applicants substantively addressed this limitation. *See generally* Ex. 16 (Response to Non-Final Office Action dated May 20, 2014); Ex. 17 (Notice of Allowance dated June 12, 2014). Thus, a POSITA cannot determine the claim scope with reasonable certainty based on the intrinsic record of the '601 Patent. *See Interval Licensing*, 766 F.3d at 1370 n.6 (finding the claims indefinite based on the claims, the written description, and the prosecution history and finding it unnecessary to rely on extrinsic evidence where there were no disputes about underlying questions of fact). Claim 1 of the '601 Patent is, therefore, invalid for indefiniteness.

E. Terms To Clarify What the “At Least One of” Modifies

The claims of the '278 Patent use “at least one of” with multiple instances of “and,” thus on its face rendering the terms unclear. Specifically, Defendants request clarification of the following terms, and propose the following constructions:

- (i) “configured to: monitor at least one of pressure and temperature of the plurality of electric pumps and the plurality of generators”
- (ii) “monitoring at a centralized control unit at least one of pressure and temperature of the electrically powered pump and the generator.” Ex. 4 ('278 Patent), Claims 1, 9.

Defendants’ Proposed Construction	USWS’s Proposed Construction
<p>Plain and ordinary meaning, which is</p> <p>(i) “configured to monitor at least one of pressure and temperature of the plurality of electric pumps and configured to monitor at least one of pressure and temperature of the plurality of generators”</p> <p>(ii) “monitoring at a centralized control unit at least one of pressure and temperature of the electrically powered pump and monitoring at the centralized control unit at least one of pressure and temperature of the generator”</p>	<p>No construction needed. To the extent the term is construed, it should have its plain and ordinary meaning.</p>

The parties dispute whether the plain meaning of the term requires both (1) monitoring of

pressure and/or temperature of the plurality of electric pumps *and* (2) monitoring of pressure and/or temperature of the plurality of generators. Defendants contend that the plain meaning does require both, while USWS attempts to ambiguously contend that monitoring of either the pumps or the generators could suffice. To be clear, Defendants do not contend that this renders claims 1 and 9 of the '278 Patent indefinite, because unlike the other claim terms discussed in the brief, the intrinsic record resolves the ambiguity for this particular term. Consistent with the specification and the rest of the intrinsic record, Defendants' construction clarifies that "at least one of" modifies the "pressure and temperature" term that immediately follows it, as opposed to modifying the "plurality of electric pumps and the plurality of generators" term found later in the claim. Accordingly, the claim requires monitoring (at least one of pressure and temperature) of both the pumps and the generators.

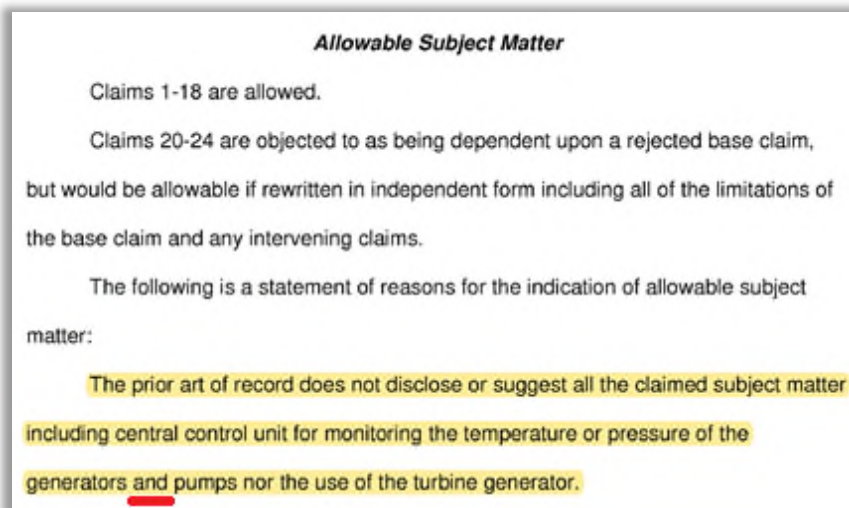
Defendants' construction clarifies the plain and ordinary meaning consistent with the claim language itself. Here, the claim recites "at least one of pressure and temperature." The proximity of the language makes clear that the "at least one" modifies "pressure and temperature," and the parties do not appear to dispute that point. However, Plaintiff effectively seeks to re-write its claim to read "monitor at least one of pressure and temperature of at least one of the plurality of electric pumps and the plurality of generators." However, the claim does not identify the electric pumps and the generators as alternatives (unlike temperature and pressure), and Plaintiff should not be permitted to broaden its claims in that manner through claim construction. *See K-2 Corp. v. Salomon S.A.*, 191 F.3d 1356, 1364 (Fed. Cir. 1999) ("Courts do not rewrite claims; instead, we give effect to the terms chosen by the patentee."); *Autogiro Co. of Am. v. United States*, 384 F.2d 391, 396 (Ct. Cl. 1967) ("Courts can neither broaden nor narrow the claims to give the patentee something different than what he has set forth.").

Indeed, only Defendants' construction finds support in both the specification and prosecution history. The specification only discloses a centralized control unit that monitors both: a pressure (or temperature) of the electric pumps *and* also a pressure (or temperature) of the generators.

The system can also include a centralized control unit coupled to the plurality of electric pumps and the plurality of generators. The centralized control unit monitors at least one of pressure, temperature, fluid rate, fluid density, concentration, volts, amps, etc. of the plurality of electric pumps and the plurality of generators. . . .

The process can further include powering the electrically powered pump or fleet of pumps with a generator powered by natural gas, diesel, propane or other hydrocarbon fuels, such as, for example, a turbine generator. The process can further include monitoring at a centralized control unit at least one of pressure, temperature, fluid rate, fluid density, concentration, volts, amps, etc. of the plurality of electric pumps and the plurality of generators.

See Ex. 4 ('278 Patent) 2:3-7, 2:20-24. The specification of the '278 Patent never discloses an embodiment where the centralized control unit monitors the pressure (or temperature) of only the electric pumps *or* only the generators. In addition, Defendants' construction is consistent with the Examiner's understanding during prosecution as reflected in the Notice of Allowable Subject Matter, which Plaintiff did not contest:



Ex. 18 (Non-Final Office Action dated Sept. 5, 2017) at 3 (highlighted). USWS's "no construction

necessary” proposal sidesteps the parties’ dispute and would improperly delegate this claim construction question to the jury. *See Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 372 (1996) (holding that “the construction of a patent, including terms of art within its claim, is exclusively within the province of the court”). Defendants’ proposed construction clarifies the plain and ordinary meaning and is supported by claim language itself, the specification, and the prosecution history. For these reasons, the Court should adopt Defendants’ construction.

F. Terms Rendered Indefinite in the ’840 and ’030 Patents by Lack of Antecedent Basis

The Asserted Claims from the ’840 and ’030 Patents are all method claims, each of which recites multiple pressurizing steps (*i.e.*, using a pump to increase pressure of a fluid). Through failure to provide antecedent basis, the scope cannot be determined with reasonable certainty as to which pumps are used to pressurize fluid at which steps. The failure to provide antecedent basis affects claim scope, as discussed below, in multiple ways.

i. “the pressurized fluid” (’840 Patent, Claims 1, 2, 4; ’030 Patent, Claims 1, 2, 4)

Defendants’ Proposed Construction	USWS’s Proposed Construction
Indefinite.	No construction needed. To the extent the term is construed, it should have its plain and ordinary meaning.

The term “the pressurized fluid” is indefinite for failing to provide reasonable certainty as to claim scope. The term lacks antecedent basis, and when viewed in the context of the surrounding language and specification, is ambiguous in an unresolvable manner. The ’030 Patent claim 1 recites:

1. A method of operations in a subterranean formation, the method comprising:
driving a pump with an electrically powered motor **to pressurize fluid**;
inserting a tool into a wellbore that intersects the formation;
pressurizing fluid upstream of the pump to form a boost fluid;
directing the boost fluid to the pump; and

directing ***the* pressurized fluid** downstream of the pump and into the wellbore upstream of the tool to push the tool into the wellbore.

Ex. 7 ('030 Patent), cl. 1 (emphasis added). Dependent claims 2 and 4 of the '030 Patent propagate the failure of antecedent basis, as they again recite "*the* pressurized fluid." *Id.*, cl. 2, 4. The claims of the '840 Patent have similar ambiguity in reciting "*the* pressurized fluid":

1. A method of operations in a subterranean formation, the method comprising:
 driving a pump with an electrically powered motor **to pressurize fluid**;
 inserting a tool into a wellbore that intersects the formation;
pressurizing fluid with a boost pump to form a boost fluid;
 directing the boost fluid to the pump;
 and directing ***the* pressurized fluid** into the wellbore above the tool to push the tool into the wellbore.

Ex. 6 ('840 Patent), cl. 1. Dependent claims of the '840 Patent again recite "*the* pressurized fluid." *Id.*, cl. 2, 4. The claims are ambiguous because there are multiple pumping operations using different pumps to pressure different fluids, and the intrinsic evidence fails to specify *which* "pressurized fluid" is being referenced when the claims recite "*the* pressurized fluid."

1. Claim 1 of the '030 and '840 Patents Does Not Provide Reasonable Certainty as to Which "Pressurized Fluid" Is Being Referenced

This term "the pressurized fluid" is indefinite because the claims provide no antecedent basis for "*the* pressurized fluid" of claims 1 of '840 and '030 Patents. Multiple pumps exist which pressurize different fluids in the method, and it is not possible to resolve which "pressurized fluid" is "directed . . . into the wellbore" in the last limitation of these claims.

The method of claim 1 of the '030 Patent and the '840 Patent recites two different steps that result in pressurized fluid, rendering it ambiguous as to which fluid "*the* pressurized fluid" refers back to. These include multiple pumping operations, each of which pressurizes fluid (*i.e.*, results in a "pressurized fluid"):

- First, claim 1 of each of the '030 and '840 Patents requires “driving a pump with an electrically powered motor to pressurize fluid,” which is a *possible* antecedent of “*the* pressurized fluid” later in the claim.
- Second, claim 1 requires “pressurizing fluid upstream of the pump to form a boost fluid” ('030 Patent) and “pressurizing fluid with a boost pump to form a boost fluid” ('840 Patent), each of which is *another possible* antecedent basis of “*the* pressurized fluid” later in the claim.
- Third, pressurized fluid from both pumps could be the antecedent, because the same fluid could be pressurized twice with the pumps operating in series.

The absence of proper antecedent reference makes the products of any of these pumps potentially “*the* pressurized fluid.”

Claim structure does not resolve the ambiguity, as the order of the steps does not suggest which of the pressurized fluid is “directed . . . into the wellbore” and which of “the pressurized fluid” is used “to push the tool into the wellbore.” Method claims are generally not interpreted to require an order in which the steps are to be performed. *Interactive Gift Express, Inc. v. Compuserve Inc.*, 256 F.3d 1323, 1342 (Fed. Cir. 2001) (“Unless the steps of a method [claim] actually recite an order, the steps are not ordinarily construed to require one.”). Nothing about the '038 and '840 Patent claims suggests otherwise. As such, the claim scope could be interpreted to direct the pressurized fluid from the electrically powered pump, the boost pump, or both.

2. Dependent Claims Compound the Ambiguity

When read in the context of the dependent claim 4, “the pressurized fluid” of claim 1 is even more inscrutable because it requires the same fluid to be in two locations at once. These dependent claims were in the original disclosure and therefore are part of the specification. *See In re Gardner*, 480 F.2d 879, 879 (C.C.P.A. 1973) (stating that original claims are considered part of the original disclosure); *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1349 (Fed. Cir. 2010) (acknowledging that “original claims are part of the original specification”); Ex. 19 ('030 Patent file history p. 20); Ex. 20 ('840 Patent file history p. 19).

In claim 1, “the pressurized fluid” is directed “into the wellbore” of claim 1. Claim 4 of the ’030 and ’840 Patents make clear that “the wellbore” of claim 1 is now denominated a “first wellbore” and that there is a separate “second wellbore.” *See* Ex. 7 (’030 Patent), cl. 4. Claim 4 of each of the ’030 Patent and ’840 Patent requires “the pressurized fluid” to be “simultaneously” directed into “a second wellbore.”

4. The method of claim 1, wherein the wellbore comprises a **first wellbore**, and wherein **the pressurized fluid** is **simultaneously** directed to a **second wellbore** that also intersects the subterranean formation.

Ex. 7 (’030 Patent), cl. 4 (emphasis added); *see also* Ex. 6 (’840 Patent), cl. 4 (same).

The claim creates an impossibility. The antecedent for “*the* pressurized fluid” of claim 4 is the same “pressurized fluid” of claim 1. *See* Ex. 7 (’030 Patent), cl. 1, 4. If the pressurized fluid of claim 1 has already been directed “into the wellbore” (or the “first wellbore”), it cannot “simultaneously” be in the “second wellbore” as required in claim 4. The same fluid cannot “simultaneously” be in two places at once. There is no mechanism disclosed in the ’840 or ’030 Patents for transferring fluid that was already pumped into a first wellbore to be simultaneously pumped into a second wellbore. “The pressurized fluid” term is indefinite.

3. The Specification Does Not Resolve the Ambiguity

The common specification also provides no guidance as to the source of “the pressurized fluid” of claim 1. The embodiment with water pump and boost pumps is mentioned in column 8 of the ’030 Patent, which identifies the pumps’ capacities at pressurizing fluid to be directed to the wellbore, but does not present a required order or otherwise indicate which pump produces “the pressurized fluid.” Ex. 7 (’030 Patent) at 8:15-36; *see also* Ex. 6 (’840 Patent) at 8:9-30. Nor do the figures add clarification. Indeed, the figures identify pumps in series, but they are arranged with valves to allow for pumping “pressurized fluid to [different] wellbores . . . for different purposes.” *See* Ex. 7 (’030 Patent), Fig. 1A; 6:5-19; *see also id.* at 4:19-21 (identifying Fig. 1A

items 36 as pump and 28 as blender with boost); *see also* claim 6 (claiming pump down and fracturing as different purposes). Other figures identify pumps in parallel, *e.g.*, Ex. 7 ('030 Patent) at Figs. 2, 3, 6, which does not resolve the ambiguity. As such, the specification contains the same ambiguity: the pressurized fluid can be directed into a wellbore by the boost pump, the pump assembly, both, or neither.

As a result, the claim term “the pressurized fluid” is indefinite as recited in the claim, because its scope cannot be determined with any reasonable certainty. *See Bushnell*, 813 Fed. App'x at 526–27 (Fed. Cir. 2020) (finding claim invalid for lack of antecedent basis where specification does not provide clarity). As with *Bushnell*, the Court is presented with claim terms without proper antecedent basis. There is not sufficient information in the patent to resolve the ambiguity. Instead, additional impossibility arises upon further examination of the specification because the claim 6 requires a portion of “the pressurized fluid” to be in two locations simultaneously.

The '030 Patent and '840 Patent are identical with respect to the “pressurized fluid” term, and the invalidity arguments apply equally to each. The asserted claims of both are indefinite and therefore invalid.

ii. “the pump” ('030 Patent, Claim 10; '840 Patent, Claim 1)

Defendants' Proposed Construction	USWS's Proposed Construction
Indefinite.	No construction needed. To the extent the term is construed, it should have its plain and ordinary meaning.

In all three instances recited above the term “the pump” is ambiguous because it can refer to one of at least two previously recited pumps, or a third pump not previously recited in the claims. The term “the pump” therefore lacks sufficient antecedent basis, so that the scope of the claims cannot be determined with reasonable certainty, and the claims are indefinite. Claim 10 of the

'030 Patent recites as follows:

10. A method of inserting a tool in a subterranean formation, the method comprising:

positioning a trailer having *a pump* driven by an electric motor at a well site;
positioning a second trailer having *a boost pump* at the well site;
pressurizing fluid with the boost pump to form a boost fluid;
directing the boost fluid to *the pump*; and
driving the tool into the subterranean formation via *the pump*.

Ex. 7 ('030 Patent), cl. 10 (emphasis added). Because claim 10 of the '030 Patent recites “a pump with an electrically powered motor to pressurize fluid” and “a boost pump,” there are at least two required pumps. However, it is ambiguous as to which of these two pumps is “the pump” recited in the last two limitations of the claim. The absence of proper antecedent reference makes either “a pump” or “a boost pump” potentially “*the pump*.” This ambiguity renders the term indefinite because it is impossible to determine the scope of the invention. Similarly, claim 1 of '840 Patent recites as follows:

1. A method of operations in a subterranean formation, the method comprising:

driving *a pump* with an electrically powered motor to pressurize fluid;
inserting a tool into a wellbore that intersects the formation;
pressurizing fluid with *a boost pump* to form a boost fluid;
directing the boost fluid to *the pump*; and
directing the pressurized fluid into the wellbore above the tool to push the tool into the wellbore.

Ex. 6 ('840 Patent), cl. 1 (emphasis added). Claim 1 of the '840 patent, recites at least two pumps: “a pump” in the first limitation and “a boost pump” in the third limitation. But when the claim refers to “*the pump*” in the fourth limitation, the claim is ambiguous because there is no indication which of the previously recited pumps is being referenced. This lack of antecedent basis is further compounded in dependent claims (*e.g.*, dependent claim 6) where another pump is injected into the claim, providing yet another possible “pump” as an antecedent for “the pump” in claim 1. *See, e.g.*, Ex. 6 ('840 Patent), cl. 6 (reciting that “a pump” of claim 1 is comprised of multiple pumps).

The common specification of both patents provides no clarification of the term “the pump” in the context of the claims. Though the specification recites numerous different types and configurations of pumps—including “electrically powered motor” driven pumps, “fracturing pumps,” “pumping systems,” “chemical pumps” “boost pump[s]” and “pump down pumps”—no identification of which type of pump is “*the pump*” recited in the asserted claims for pressurizing fluid into the wellbore to push the tool into the wellbore is disclosed. *See, e.g.*, Ex. 7 (’030 Patent) at 2:12-18; 6:41-45; 6:28-30; 4:22-23; 8:24-29; 7:19-32. The specification also contains the same ambiguity when purportedly describing the scope of the invention. *See, e.g., id.* at 2:33-35 (“Additional embodiments can include pressurizing fluid with an electric blender to form a boost fluid, directing the boost fluid to the pump”).

Because the ambiguity of this term prevents a determination of the scope of the invention with any reasonable certainty, this term is indefinite and renders ’030 Patent claim 10, ’840 Patent claim 1, and all of their dependent claims, invalid. *Bushnell*, 813 Fed. App’x 522.

VI. CONCLUSION

For the foregoing reasons, Defendants respectfully request that the Court adopt its proposed constructions for the following terms:

Patent No., Claim No.	Disputed Term	Proposed Construction
’410 Patent, Claim 1 ’601 Patent, Claim 1 ’308 Patent, Claim 1 ’278 Patent, Claims 1, 9 ’728 Patent, Claim 1	“high pressure”	Indefinite
’410 Patent, Claim 8	“the vehicles”	Indefinite
’410 Patent, Claim 1 ’601 Patent, Claim 1	“performing/performs electric motor diagnostics to prevent damage” / “performs electric	Indefinite

Patent No., Claim No.	Disputed Term	Proposed Construction
'728 Patent, Claims 1, 7	motor diagnostics"	
'601 Patent, Claim 1	"the at least one variable frequency drive frequently performing electric motor diagnostics to prevent damage to the electric motors if they become grounded or shorted"	Indefinite
'278 Patent, Claims 1, 9	(i) "configured to: monitor at least one of pressure and temperature of the plurality of electric pumps and the plurality of generators" (ii) "monitoring at a centralized control unit at least one of pressure and temperature of the electrically powered pump and the generator"	(i) "configured to monitor at least one of pressure and temperature of the plurality of electric pumps and configured to monitor at least one of pressure and temperature of the plurality of generators" (ii) "monitoring at a centralized control unit at least one of pressure and temperature of the electrically powered pump and monitoring at the centralized control unit at least one of pressure and temperature of the generator"
'840 Patent, Claims 1, 2, 4 '030 Patent, Claims 1, 2, 4	"the pressurized fluid"	Indefinite
'840 Patent, Claim 1 '030 Patent, Claim 10	"the pump"	Indefinite

Dated: October 27, 2021

Respectfully submitted,

By: /s/ Roger Fulghum

Roger Fulghum

Texas Bar No. 00790724

Michael A. Hawes (*pro hac pending*)

Texas Bar No. 24010761

BAKER BOTTS L.L.P.

910 Louisiana Street

Houston, Texas 77002-4995

Telephone: (713) 229-1234

Facsimile: (713) 229-1522

roger.fulghum@bakerbotts.com

michael.hawes@bakerbotts.com

David M. Genender (*pro hac pending*)

Texas Bar No. 00790757

Susan Cannon Kennedy (*pro hac pending*)

Texas Bar No. 24051663

David J. Tobin

Texas Bar No. 24060735

BAKER BOTTS L.L.P.

2001 Ross Avenue, Suite 900

Dallas, Texas 75201-2980

Telephone: (214) 953-6500

Facsimile: (214) 661-4816

david.genender@bakerbotts.com

susan.kennedy@bakerbotts.com

Syed K. Fareed

Texas Bar No. 24065216

BAKER BOTTS L.L.P.

98 San Jacinto Boulevard, Suite 1500

Austin, Texas 78701-4078

Telephone: (512) 322-2500

Facsimile: (512) 322-2501

syed.fareed@bakerbotts.com

**ATTORNEYS FOR DEFENDANT/COUNTER-
PLAINTIFF HALLIBURTON ENERGY
SERVICES, INC.**

By: /s/ Brian C. Nash

Brian C. Nash (TX Bar No. 24051103)

Brian.nash@pillsburylaw.com

Austin M. Schnell (TX Bar No. 24095985)

Austin.schnell@pillsburylaw.com

**PILLSBURY WINTHROP SHAW PITTMAN
LLP**

401 Congress Avenue, Suite 1700

Austin, TX 78701

Tel: 512-580-9629

Facsimile: 512-580-9601

**COUNSEL FOR DEFENDANT CIMAREX
ENERGY CO.**

CERTIFICATE OF SERVICE

I hereby certify that all counsel of record who have consented to electronic service are being served with a copy of this document via the Court's CM/ECF system per Local Rule CV-5(a)(3) on this, the 27th day of October, 2021.

/s/ Roger Fulghum
Roger Fulghum